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10/520,425	01/07/2005	Michael Stewart Griffith	033963-014	5697
21839	7590	10/09/2008		
BUCHANAN, INGERSOLL & ROONEY PC				EXAMINER
POST OFFICE BOX 1404				DOAK, JENNIFER L
ALEXANDRIA, VA 22313-1404			ART UNIT	PAPER NUMBER
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NOTIFICATION DATE	DELIVERY MODE			
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No. 10/520,425	Applicant(s) GRIFFITH ET AL.
	Examiner Jennifer L. Doak	Art Unit 2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If no period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 20 June 2008.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-3,5-23,25-28 and 31-34 is/are pending in the application.

4a) Of the above claim(s) 3,7,16-23 and 26-28 is/are withdrawn from consideration.

5) Claim(s) 8 is/are allowed.

6) Claim(s) 1,2,5,6,9-15,25 and 31-34 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All b) Some * c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____

4) Interview Summary (PTO-413)
Paper No(s)/Mail Date _____

5) Notice of Informal Patent Application

6) Other: _____

DETAILED ACTION

Specification

The title of the invention is not sufficiently descriptive. "The title should be brief but technically accurate and descriptive and should contain fewer than 500 characters," MPEP §606. Specifically, statements concerning the general type or nature of the entire system or its components that are common to many other similar elements or systems that are known in the art are not sufficiently descriptive to provide "informative value in indexing, classifying, searching, etc.," MPEP §606.01. Examiner recommends directing the title to what Applicant believes is the point of novelty, since it is by the novelty that "indexing, classifying, searching, etc." is generally accomplished. Nevertheless, it should be noted that, pursuant to MPEP §606.01, "[i]f a satisfactory title is not supplied by the applicant, the examiner may, at the time of allowance, change the title by examiner's amendment."

A new title is required that is more clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 2, 5, 6, 9-15, 25, and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Plante (US 4655563) in view of Clemino (US 4670338).

Regarding claims 1 and 6, Examiner makes the following findings of fact: Plante discloses a mirror structure comprising: a self-deforming mirror (Fig. 3: 10) mounted on a passive flexible support structure (16, epoxy as at col. 5, lns 37-43) the support structure comprising, one or more passive support elements (16) arranged to provide a supporting surface on which the self-deforming mirror is mounted (Figs. 1 and 3)), wherein the support structure is arranged to enable a deformation response in the self-deforming mirror mounted thereon (Title); and the option of using epoxy to affix element 16 (col. 3, lns 18-22). Plante does not explicitly disclose that the supports are “flexible” or “compliant”. Plante and Clemino are related as mirrors. Clemino discloses the flexibility resulting from an epoxy type glue (col. 5, lns 37-43),

therefore imparting flexibility to element 16. Such a material enables the absorption of stresses or reduction of deformation (col. 7, lns 43-50).

Therefore, Examiner finds that it would have been obvious to an ordinarily skilled artisan at the time of invention to use a flexible epoxy adhesive as taught by Clemino as the epoxy disclosed by Plante in order to enable the absorption of stresses or reduction of deformation.

Regarding claims 2, 5, 9, the combination further discloses the plurality of passive flexible support elements (Plante, Fig. 1: 16) are spatially arranged to support the self-deforming mirror from below (Fig. 1), with each of the support elements having an end shaped for providing support to the self-deforming mirror (Figs. 1, 3: 10) and a flexible portion that connects the supporting end of the support element to a body portion (20) of the support structure; wherein each of the support elements is positioned so as to be in supportive contact with a different electrode (34) of the self-deforming mirror mounted thereon (note that electrodes 34 are necessarily formed on the surface); the support elements are formed as integral parts of the body portion of the support structure (note that integral is sufficiently broad so as to encompass the joined structures shown in Plante).

Regarding claims 10-12 and 15, the combination does not explicitly disclose that the compliance of compliant material selected to form at least a portion of each of the support elements varies according to an established position of the support element in the support structure; the distance of the respective support element from the edge of a supported mirror substrate; the position of the support element in the support structure; varying the compliance of the compliant material used to form the support element. However, these variances are seen as inherent in the combination. With respect to compliance in relation to positioning of the support

elements (including near the edge and within the support structure), since Plante it is disclosed that Plante is a deformable mirror, it is noted that different locations on or within the mirror structure would have varying stresses on the support structures relative to the deformation, and it is apparent that these stresses would result in varying compliance, which therefore must be present for the device to function as intended.

Regarding claims 13 and 14, the combination does not explicitly disclose that the compliance of compliant material selected to form at least a portion of each of the support elements varies according to the length of the support element; the cross-sectional area of the support element. However, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art, *In re Aller*, 105 USPQ 233 (C.C.P.A. 1955). Benefits of such optimization in this case can include reduced distortion, increased life expectancy of the mirror system, or better image quality.

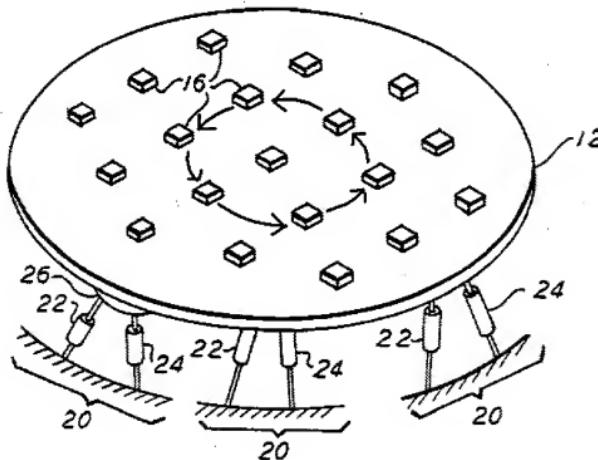
Therefore, Examiner finds that it would have been obvious to an ordinarily skilled artisan at the time of invention to optimize the ranges of length and cross-sectional areas of the support elements to reduce distortion, increase life of the mirror system, or improve image quality.

Regarding claim 25, the combination further discloses a reflective surface (Plante, Fig. 1: 14) provided on a substrate (10) and a layer of deformable material (i.e., epoxy) attached to the substrate that is operable to deform the mirror.

Regarding claims 31-33, the combination further discloses that required deformation response for the self-deforming mirror includes a resonant frequency (Plante, col. 1, Ins. 41-43) for the self-deforming mirror mounted on the support structure; a required deformation response

for the self-deforming mirror includes a required stroke characteristics (e.g., col. 2, lns. 9-18; col. 5, lns. 30-42) for the self-deforming mirror mounted on the support structure; wherein the self-deforming mirror is a bimorph (see above: having both bandwidth, which is related to frequency, and stroke, which is displacement) self-deforming mirror having at least one layer of deformable material (14, 10).

Regarding claim 34, the combination further discloses at least some of the support elements are disposed in equi-spaced relationships in a circular arrangement (Plante, Fig. 1 as reproduced below and marked by Examiner for demonstration purposes), each positioned so as to be in contact with one or more mirror electrodes (34) when in use.



Reproduced from Plante, US 4655563, Fig. 1.

Examiner added directional indicators for circular, equi-distant relationship explication only.

Response to Arguments

Applicant's arguments filed 6/20/08 have been fully considered but they are not persuasive.

Applicant argues that the limitations of the claims are not met, since top sheet 10 is not alone a self-deformable mirror because the self-deformable mirror of Plante, therefore, must include at least elements 10, 12, 16, and 18 and since elements 16 are part of the self-deformable mirror, they cannot be used to meet the claimed passive support elements; thus, elements 16 cannot form a supporting structure for the self-deformable mirror that the Plante bi-pod mounts (20) are not passive, but active, and therefore do not meet the limitations of the claim.

Examiner's dissection of the apparatus of Plante is inconsistent with the teachings of that reference, and Applicant's interpretation, as set forth above, is more reasonable.

Applicant further argues disagreement with the use of the Clemino reference to evidence flexibility of elements 16, since the purpose of the material is to as a bonding agent, and as it is not thick, it cannot be used to perform the mechanical function of principle flexing member as asserted by the Examiner, which is inconsistent with accepted and well-known application of the material; that the combination is inappropriate because the references are different and the combination would be unworkable; that Examiner used impermissible hindsight and has not met the burden required of the Office and cites *In re Oetiker*, *KSR In'tl v. Teleflex, Inc.*, and *In re Kahn* noting that rejections must be reasoned and on a factual basis, without merely broad and conclusory statements.

Examiner respectfully disagrees. Examiner appreciates Applicant's thoughtful and reasoned arguments, but, as reasonable minds may differ, Examiner is ultimately not persuaded.

First, in response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the feature upon which applicant relies (i.e., "self-deforming mirror") has been given its broadest reasonable interpretation. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Examiner's identification of element 10 as the self-deforming mirror is appropriate, since no special definition of "self-deforming mirror" is found in Applicant's specification. Applicant seems to imply that the only interpretation of the "self-" portion is that it must cause some action of its own accord; however, the surface (a mirror surface), itself, is deformed in the reference. Alternatively, the surface does not require the entirety of the remainder of the system to bend with it. Therefore, Examiner's interpretation does not exclude element 16 from use as a passive support structure, and Plante's element 20 need not be applied to the passive elements. Pursuant to this reasoning, Examiner maintains the rejection.

Second, the Clemino reference is neither cited for its bonding ability nor any "mechanical" nature, but as evidence of its properties. It is noted that a primary function of an element does not make all its features exclusive to that function. The language of the claim "flexible" neither includes nor necessarily implies "mechanical" nature, since the word "flexible" may apply to any number of non-mechanical flexible materials such as cooked pasta, for example, which has no mechanical function but is flexible. The claim language does not make this distinction, and it is noted that it is improper for an Examiner to import limitations from the specification in to the claims.

Moreover, no broad and conclusory statements or "convenient dissection" were made by Examiner; Examiner must take the broadest reasonable interpretation, and Examiner has offered evidence by identifying and correlating elements from the prior art.

Additionally, with respect to Applicant's concern about the combination, it is noted that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

Therefore, Examiner maintains the rejection.

Allowable Subject Matter

Pursuant to the reasons set forth in a previous office Action, claim 8 is allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Doak whose telephone number is (571)272-9791. The examiner can normally be reached on Mon-Thurs: 7:30A-5:00P, Alt Fri: 7:30A-4:00P (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on 571-272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JD
9/30/08

/Stephone B. Allen/
Supervisory Patent Examiner
Art Unit 2872